

CLAIMS

What is claimed is:

- 1 1. An apparatus comprising:
 - 2 a frame module to process a frame containing information regarding a local
 - 3 node in a first network, the information including discovery information and network
 - 4 state information, the discovery information being represented in a common
 - 5 description;
 - 6 an information module coupled to the frame module to manage the information;
 - 7 and
 - 8 a communication module coupled to the frame module and the information
 - 9 module to manage communication between the local node and a remote node in a
 - 10 second network using the information.
- 1 2. The apparatus of claim 1 wherein the frame module comprises:
 - 2 a frame builder to build the frame containing the information;
 - 3 a frame transmitter coupled to the frame builder to transmit the frame to another
 - 4 local node in the first network or the remote node in the second network;
 - 5 a frame poller coupled to the frame transmitter to provide a polling frame
 - 6 requesting for information of the remote node; and
 - 7 a frame receiver to receive another frame from another local node in the first
 - 8 network or to receive a remote frame from the remote node.
- 1 3. The apparatus of claim 2 wherein the frame receiver forwards the
- 2 received remote frame to the communication module if the received remote frame is
- 3 related to the network communication.
- 1 4. The apparatus of claim 2 wherein the frame receiver forwards the
- 2 received remote frame to the information module of the local node, to another local
- 3 node in the first network, or to another remote node if the received remote frame is
- 4 related to information exchange and meets an acceptance condition.
- 1 5. The apparatus of claim 4 wherein the acceptance condition is based on a
- 2 forwarding number and propagation parameters including a propagation list and a

3 propagation type, the forwarding number and the propagation type being contained in
4 the frame..

1 6. The apparatus of claim 1 wherein the information module comprises:
2 a collector to collect the information;
3 a translator coupled to the collector to translate the discovery information into
4 the common description;
5 a node selector coupled to the collector to determine if the local node
6 participates in the communication based on the network state information of the local
7 node and other network state information from another local node in the first network;
8 and
9 a synchronizer to synchronize the collected information with other information.
10 from other local nodes in the first network.

1 7. The apparatus of claim 6 wherein the information module further
2 comprises:
3 an information table to store entries regarding information extracted from a
4 received remote frame; and
5 an information table updater to update the entries.

1 8. The apparatus of claim 1 wherein the communication module comprises:
2 a usage evaluator to evaluate network usage to determine relative location of the
3 second network based on an interference list from the network state information;
4 a channel migration evaluator to evaluate a channel allocation layout;
5 a channel change controller to control a channel change based in the channel
6 allocation layout; and
7 a channel changer to change channel of the local node according to a wireless
8 mode used by the node.

1 9. The apparatus of claim 8 wherein the channel migration evaluator
2 evaluates an alternate layout based on a relationship between interference and channel
3 distance.

1 10. The apparatus of claim 1 wherein the discovery information includes
2 information on at least node device, node service, and user.

1 11. The apparatus of claim 1 wherein the network state information includes
2 at least one of network configuration, network status, network history, and an
3 interference list.

1 12. The apparatus of claim 11 wherein the interference list includes at least a
2 network from which the local node receives a beacon or directly receives a remote
3 frame from the remote node.

1 13. A method comprising:
2 processing a frame containing information regarding a local node in a first
3 network, the information including discovery information and network state
4 information, the discovery information being represented in a common description;
5 managing the information; and
6 managing communication between the local node and a remote node in a second
7 network using the information.

1 14. The method of claim 13 wherein processing the frame comprises:
2 building the frame containing the information;
3 transmitting the frame to another local node in the first network or the remote
4 node in the second network;
5 providing a polling frame requesting for information of the remote node; and
6 receiving another frame from another local node in the first network or a remote
7 frame from the remote node.

1 15. The method of claim 14 wherein receiving comprises forwarding the
2 received remote frame to the communication module if the received remote frame is
3 related to the network communication.

1 16. The method of claim 14 wherein receiving comprises forwarding the
2 received remote frame to the information module of the local node, to another local
3 node in the first network, or to another remote node if the received remote frame is
4 related to information exchange and meets an acceptance condition.

1 17. The method of claim 16 wherein the acceptance condition is based on a
2 forwarding number and propagation parameters including a propagation list and a

3 propagation type, the forwarding number and the propagation type being contained in
4 the frame..

1 18. The method of claim 13 wherein managing the information comprises:
2 collecting the information;
3 translating the discovery information into the common description;
4 determining if the local node participates in the communication based on the
5 network state information of the local node and other network state information from
6 another local node in the first network; and
7 synchronizing the collected information with other information from other local
8 nodes in the first network.

1 19. The method of claim 18 wherein managing the information further
2 comprises:
3 storing entries regarding information extracted from a received remote frame;
4 and
5 updating the entries.

1 20. The method of claim 13 wherein managing the communication
2 comprises:
3 evaluating network usage to determine relative location of the second network
4 based on an interference list from the network state information;
5 evaluating a channel allocation layout;
6 controlling a channel change based in the channel allocation layout; and
7 changing channel of the local node according to a wireless mode used by the
8 node.

1 21. The method of claim 20 wherein evaluating a channel allocation layout
2 comprises evaluating an alternate layout based on a relationship between interference
3 and channel distance.

1 22. The method of claim 13 wherein the discovery information includes
2 information on at least node device, node service, and user.

1 23. The method of claim 13 wherein the network state information includes
2 at least one of network configuration, network status, network history, and an
3 interference list.

1 24. The method of claim 23 wherein the interference list includes at least a
2 network from which the local node receives a beacon or directly receives a remote
3 frame from the remote node.

1 25. An article of manufacture comprising:
2 a machine-accessible medium including data that, when accessed by a machine,
3 causes the machine to perform operations comprising:
4 processing a frame containing information regarding a local node in a first
5 network, the information including discovery information and network state
6 information, the discovery information being represented in a common description;
7 managing the information; and
8 managing communication between the local node and a remote node in a second
9 network using the information.

1 26. The article of manufacture of claim 25 wherein the data causing the
2 machine to perform processing the frame comprises data that, when accessed by the
3 machine, causes the machine to perform operations comprising:
4 building the frame containing the information;
5 transmitting the frame to another local node in the first network or the remote
6 node in the second network;
7 providing a polling frame requesting for information of the remote node; and
8 receiving another frame from another local node in the first network or a remote
9 frame from the remote node.

1 27. The article of manufacture of claim 26 wherein the data causing the
2 machine to perform receiving comprises data that, when accessed by the machine,
3 causes the machine to perform operations comprising forwarding the received remote
4 frame to the communication module if the received remote frame is related to the
5 network communication.

1 28. The article of manufacture of claim 26 wherein the data causing the
2 machine to perform receiving comprises data that, when accessed by the machine,
3 causes the machine to perform operations comprising forwarding the received remote
4 frame to the information module of the local node, to another local node in the first
5 network, or to another remote node if the received remote frame is related to
6 information exchange and meets an acceptance condition.

1 29. The article of manufacture of claim 28 wherein the acceptance condition
2 is based on a forwarding number and propagation parameters including a propagation
3 list and a propagation type, the forwarding number and the propagation type being
4 contained in the frame..

1 30. The article of manufacture of claim 25 wherein the data causing the
2 machine to perform managing the information comprises data that, when accessed by
3 the machine, causes the machine to perform operations comprising:
4 collecting the information;
5 translating the discovery information into the common description;
6 determining if the local node participates in the communication based on the
7 network state information of the local node and other network state information from
8 another local node in the first network; and
9 synchronizing the collected information with other information. from other local
10 nodes in the first network.

1 31. The article of manufacture of claim 30 wherein the data causing the
2 machine to perform managing the information further comprises data that, when
3 accessed by the machine, causes the machine to perform operations comprising:
4 storing entries regarding information extracted from a received remote frame;
5 and
6 updating the entries.

1 32. The article of manufacture of claim 25 wherein the data causing the
2 machine to perform managing the communication comprises data that, when accessed
3 by the machine, causes the machine to perform operations comprising:

4 evaluating network usage to determine relative location of the second network
5 based on an interference list from the network state information;
6 evaluating a channel allocation layout;
7 controlling a channel change based in the channel allocation layout; and
8 changing channel of the local node according to a wireless mode used by the
9 node.

1 33. The article of manufacture of claim 32 wherein the data causing the
2 machine to perform evaluating a channel allocation layout comprises data that, when
3 accessed by the machine, causes the machine to perform operations comprising
4 evaluating an alternate layout based on a relationship between interference and channel
5 distance.

1 34. The article of manufacture of claim 25 wherein the discovery
2 information includes information on at least node device, node service, and user.

1 35. The article of manufacture of claim 25 wherein the network state
2 information includes at least one of network configuration, network status, network
3 history, and an interference list.

1 36. The article of manufacture of claim 35 wherein the interference list
2 includes at least a network from which the local node receives a beacon or directly
3 receives a remote frame from the remote node.

1 37. An apparatus comprising:
2 means for processing a frame containing information regarding a local node in a
3 first network, the information including discovery information and network state
4 information, the discovery information being represented in a common description;
5 means for managing the information; and
6 means for managing communication between the local node and a remote node
7 in a second network using the information.

1 38. The apparatus of claim 37 wherein the means for processing the frame
2 comprises:
3 means for building the frame containing the information;

4 means for transmitting the frame to another local node in the first network or the
5 remote node in the second network;

6 means for providing a polling frame requesting for information of the remote
7 node; and

8 means for receiving another frame from another local node in the first network
9 or a remote frame from the remote node.

1 39. The apparatus of claim 37 wherein the means for managing the
2 information comprises:

3 means for collecting the information;

4 means for translating the discovery information into the common description;

5 means for determining if the local node participates in the communication based
6 on the network state information of the local node and other network state information
7 from another local node in the first network; and

8 means for synchronizing the collected information with other information from
9 other local nodes in the first network.

1 40. The apparatus of claim 37 wherein the means for managing the
2 communication comprises:

3 means for evaluating network usage to determine relative location of the second
4 network based on an interference list from the network state information;

5 means for evaluating a channel allocation layout;

6 means for controlling a channel change based in the channel allocation layout;

7 and

8 means for changing channel of the local node according to a wireless mode used
9 by the node.